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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/574,152	03/29/2006	Iwao Ushinohama	07583400566	7738
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ROBERT J. DEPKE LEWIS T. STEADMAN ROCKEY, DEPKE & LYONS, LLC SUITE 5450 SEARS TOWER CHICAGO, IL 60606-6306			EXAMINER UHLENHAKE, JASON S	
			ART UNIT 2853	PAPER NUMBER
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/574,152

**Applicant(s)**

USHINOHAMA ET AL.

**Examiner**

JASON S. UHLENHAKE

**Art Unit**

2853

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 19 June 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/ICE)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Claim Objections***

Claims 11-12 are objected to because of the following informalities: In line 5 of claims 11 and 12, in the claim language "different from the first via a second switch", it is unclear to the Examiner exactly what "the first" is being referred to. The Examiner has taken "the first" to refer to the first potential power source. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Eguchi (JP 2002-240287 A).

#### ***Eguchi discloses:***

- ***regarding claims 1, 4***, a liquid emitting apparatus and a method for a liquid emitting apparatus including a liquid chamber for storing a liquid, a supply unit for supplying the liquid to the liquid chamber, two or more pressure generating liquid elements provided in the liquid chamber for pressurizing the liquid stored in the liquid chamber (Figure 1; Abstract), of emitting ports for emitting the liquid pressurized by the pressure generating elements onto a major surface of a support from the liquid chamber in the

form of liquid droplets, an emission control circuit for varying a current value supplied to at least one of the pressure generating elements relative to one of the other pressure generating elements to thereby control an angle of emission of the liquid droplets from the emitting ports; wherein (Figures 3-4; Paragraphs 0039-0040)

- with a non-zero current supplied to one of the pressure generating elements as a reference current, the emission control circuit supplies the current substantially equal to the reference current or the current having a current value difference less than  $\pm 10\%$  from the reference current, to one or more of the pressure generating elements other than the pressure generating element supplied with the reference current (Paragraphs 0039-0043). A current value difference less than  $\pm 10\%$  from the reference current includes the value 0, therefore as shown in Figure 3c and Paragraph 0042 Eguchi discloses a current value difference less than  $\pm 10\%$  from the reference current.

- **regarding claims 2, 5**, wherein the emission controlling means supplies the current having a current value difference less than  $\pm 8\%$  with respect to the reference current to the pressure generating element or elements other than the pressure generating element supplied with the reference current. A current value difference less than  $\pm 8\%$  from the reference current includes the value 0, therefore as

shown in Figure 3c and Paragraph 0042 Eguchi discloses a current value difference less than  $\pm 8\%$  from the reference current.

- **regarding claims 3, 6**, wherein the emitting ports of the emitting means are arranged side-by-side in a line (Claim 2; Paragraph 0021)

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 7-8, 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eguchi (JP 2002-240287 A) in view of Norton (U.S. Pat. 6,439,678)

***Eguchi discloses:***

- **regarding claims 9, 10**, wherein the current value and substantially equal current applied to the one or more of the pressure generating elements other than the pressure generating element supplied with the reference current is varied relative to the variation of the resistance of the variable resistance element (Paragraphs 0040-0042)

***Eguchi does not disclose expressly the following:***

- **regarding claims 7, 8**, wherein the emission control circuit is comprised of one or more switches and a variable resistance element

***Norton discloses:***

- **regarding claims 7, 8**, wherein the emission control circuit is comprises of one or more switches and a variable resistance element (Abstract)

At the time the invention was made it would have been obvious to a person of ordinary skill in the art to incorporate the teaching of Norton into the device of Eguchi, for the purpose of controlling firing energy in an inkjet printer

Claims 11-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eguchi (JP 2002-240287 A) as modified by Norton (U.S. Pat. 6,439,678) as applied to claims 1, 4 above, and further in view of Takenaka et al (U.S. Pub. 2005/0057599).

***Eguchi as modified by Norton does not disclose expressly the following:***

- **regarding claims 11, 12**, wherein the emission control circuit is comprised of the variable resistance element connected to a first terminal of each of the pressure generating elements via a first switch, and the variable resistance element is selectively connected to a first potential power source and a second potential power source different from the first via a second switch

- **regarding claims 13, 14**, wherein the pressure generating element supplied with a non-zero reference current has a second terminal thereof connected to a third potential power source, and each of the one or more pressure generating elements other than the pressure generating element supplied with the reference current has a second terminal thereof selectively connect e to a fourth potential power source via one of more third switches

- **regarding claim 15-16**, wherein the first and fourth potential power sources are a ground level

- **regarding claims 17-18**, wherein the first and second switches are respectively controlled via first and second switch control circuits, and the first control circuit causing the variable resistance element to be connected to and disconnected from the pressure generating elements, and the second control circuit determining whether the variable resistance element is connected to the first or said the second potential power source

***Takenaka discloses:***

- **regarding claims 11, 12**, wherein the emission control circuit is comprised of the variable resistance element connected to a first terminal of each of the pressure generating elements via a first switch, and the variable resistance element is selectively connected to a first potential power source and a second potential power source different from the first via a second switch (Figure 18)

- **regarding claims 13, 14**, wherein the pressure generating element supplied with a non-zero reference current has a second terminal thereof connected to a third potential power source, and each of the one or more pressure generating elements other than the pressure generating element supplied with the reference current has a second terminal thereof selectively connect e to a fourth potential power source via one of more third switches (Figure 18)

- **regarding claim 15-16**, wherein the first and fourth potential power sources are a ground level (Figure 18)

- **regarding claims 17-18**, wherein the first and second switches are respectively controlled via first and second switch control circuits, and the first control circuit causing the variable resistance element to be connected to and disconnected from the pressure generating elements, and the second control circuit determining whether the variable resistance element is connected to the first or said the second potential power source (Figure 18)

At the time the invention was made it would have been obvious to a person of ordinary skill in the art to incorporate the teaching of Takenaka into the device of Eguchi as modified by Norton, for the purpose of controlling the discharge direction of a droplet

### ***Response to Arguments***

Applicant's arguments filed 6/19/2008 have been fully considered but they are not persuasive.

Applicant argues that the Eguchi reference does not disclose a control circuit for varying a current value of one of a plurality of pressure generating elements relative to another of the plurality of pressure generating elements in order to ensure that a current substantially equal to  $\pm 10\%$  from a non zero reference current is applied to pressure generating elements other than the reference element. However since the range is  $\pm 8\%$  or  $\pm 10\%$ , zero falls within that range, refer to figure 4c.

Applicant's arguments with respect to claims 11-18 have been considered but are moot in view of the new ground(s) of rejection. Refer to the rejection above regarding Norton (U.S. Pat. 6,439,678) and Takenaka et al (U.S. Pub. 2005/0057599).



### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **JASON S. UHLENHAK** whose telephone number is (571)272-5916. The examiner can normally be reached on Monday-Friday 8:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/JASON S UHLENHAK/  
Examiner, Art Unit 2853  
September 5, 2008

/Julian D. Huffman/  
Primary Examiner, Art Unit 2853